Abstracts

Abstracts

A. ENOKI and K. KITAO: **Autoxidation of Resin Acids.** I., Mokuzai Gakkaishi (J. Japan Wood Res Soc.), **20**, 342 (1974).

The autoxidation of methyl palustrate under the influence of sky light and air was studied. From the reaction products, three products were isolated and identified as methyl 8α, 9α; 13α, 14α-diepoxyabietan-18-oate, methyl 8β, 9β; 13β, 14β-diepoxyabietan-18-oate and methyl dehydroabietate. Besides them, methyl 9α, 13α-peroxyabiet-8(14)-en-18-oate and methyl 9β, 13β-peroxyabiet-8(14)-en-18-oate was observed in the initial stage of the photooxidation. The peroxides were converted to the diepoxides when exposed to sky light.

T. IKEDA and K. KITAO: **Terpenoids from *Dipterocarpus gracilis*.** II., Mokuzai Gakkaishi (J. Japan Wood Res. Soc.), **20**, 460 (1974).

Three triterpenes, named gracilol-A, -B, and -C, having dammarane skeleton, have been isolated as main constituents from Dipterocarpus gracilis. The structure of gracilol-A, -B and -C were 25-hydroxy-dammar-20(22)-ene-3-one (II), 20, 25-dihydroxy-dammar-3-one (IX) and 3β, 25-dihydroxy-dammarane (XI), respectively, which were derived on the basis of the partial synthesis from dipterocarpol (V) and spectroscopic evidences.

T. IKEDA and K. KITAO: **Application of NMR Shift Reagent in Determining the Structure of Triterpenes**, Mokuzai Gakkaishi (J. Japan Wood Res. Soc.), **20**, 592 (1974).

The NMR spectra of triterpenes related to α-amyrin group was investigated by use of the shift reagent Eu(DPM)$_3$. Assignment of the methyl resonances of 5 compounds (α-amyrin, α-amyrin acetate, ursolic acid methyl ester and trifluoroacetate of ursolic acid methyl ester) has been achieved. It was confirmed that the pseudo-contact shifts of the bifunctional triterpene can be calculated as the sum of the pseudo-contact shifts of two corresponding monofunctional compounds.

A. ENOKI and K. KITAO: **Autoxidation of Resin Acids.** II., Mokuzai Gakkaishi (J. Japan Wood Res. Sec.), **20**, 600 (1974).

The autoxidation of methyl levopimarate under the influence of sky light and air was studied. From the reaction products, seven products were isolated and indentified as methyl 8α, 14α-epoxy-12-oxoabietan-18-oate (1), methyl 12α, 13α; 8α, 14α-diepoxyabietan-18-oate (2), methyl 8α-hydroxy-12-oxoabiet-13-en-18-oate (3), methyl 12α-hydroxyabietate (4), methyl 8α, 14α-epoxyabiet-8, 14-en-18-oate (5), methyl dehydroabietate (6)

and methyl photolevopimarate (7). Besides them, methyl 8α, 12α-peroxyabiet-13-en-18-oate was obtained in the initial stage of the photooxidation. The peroxide was converted to the compounds (1), (2) and (3) when exposed to sky light.

Y. NAKAMURA, H. FUSHIKI and T. HIGUCHI: **Metabolic Differences between Gymnosperms and Angiosperms in the Formation of Syringyl Lignin**, Phytochemistry, **13**, 1777 (1974).

Sliced xylem tissue from shoots of both poplar and cherry reduces ferulic and sinapic acids to the corresponding aldehydes and alcohols, while tissue from gymnosperms such as Japanese red pine and ginkgo can reduce only ferulic acid. In young, less differentiated, xylem tissue and callus tissue of angiosperms the ability to reduce sinapic acid is markedly lower than that of the fully differentiated xylem. Both gymnosperm and angiosperm tissues reduced coniferyl and sinapyl aldehydes to the corresponding alcohols and, further, the peroxidases from both classes gave similar dehydrogenation polymers from a mixture of coniferyl and sinapyl alcohols. In agreement with these findings, sinapyl aldehyde and sinapyl alcohol, when fed to living plants and tissue cultures of gymnosperms, were shown to be readily converted to syringyl lignin which was not originally present.

K. NISHIMOTO, K. MIWA, Y. II and M. TSUDA: **Prevention of Wood Deterioration during Outside Chip Storage, 1, Japanese Mixed Hardwood Chips**, Kami-Pa Gijutsu Kyokaishi (Japan Tappi), **28**, 417 (1974).

In order to obtain the fundamental information on chip deterioration, about 1,000 ton of Japanese mixed hardwood chips were storaged in the outside and the effect of preservatives was examined.

K. NISHIMOTO, M. TAKAHASHI, S. AKINO, K. YODOMURA and M. TSUDA: **Prevention of Wood Deterioration during Outside Chip Storage, 2, Change of Microorganism at the Handling Periods of Chips**, Kami-Pa Gijutsu Kyokaishi (Japan Tappi), **28**, 486 (1974).

New Zealand pine chips, mixture of *Pinus radiata*, *Pinus ponderosa*, *Pinus pinaster* and *Pinus nigra* were examined for detrioration of chips by wood-decaying fungi at three handling periods of chips; chipping and loading in New Zealand, and unloading at Shimizu, Japan. In addition to the isolation of the fungi, temperature measurement and gas analysis in the hatch were done for investigating the relationship between oxygen and the rise of temperature.

K. NISHIMOTO, S. AKINO, I. TSUTSUI, K. YODOMURA and M. TSUDA: **Preventon of Wood Deterioration during Outside Chip Storage, 3, Prevention of Wood Deterioration by O_2 Cut**, Kami-Pa Gijutsu Kyokaishi (Japan Tappi), **28**, 534 (1974).

Using New Zealand pine chips which were previously stored in the outside, the effect of CO_2 and chemicals on chip deterioration, deteriorating rate of New Zealand chips were tested. Small piles simulation was also tried.

K. NISHIMOTO: **Preservation of Plywood —Veneer Treatment—**, Mokuzai Kogyo (Wood Industry), **29**, 509 (1974).

The influence of wood preservatives on the bonding strength and the preservative effect of the treated polywood were tested when the dried veneer was treated by the dipping process.

M. TAKAHASHI: **Termite Resistance of Main Timber for Building Use**, Mokuzai Kogyo (Wood Industry), **29**, 500 (1974).

Reputation of the timber for resistance to termite attack is often local. Some timbers have not maintained their repurations under different conditions in new countries, or where new varieties of termite have appeared. When a timber has been tested for termite resistance with favourable results, full consideration should be given to the opportunities for damage during the course of the test in assessing the chances of the timber being similarly resistant elsewhere.

H. MATSUO and K. NISHIMOTO: **Response of the Termite *Coptotermes formosanus* (Shiraki) to Extract Fractions from Fungus-infected Wood and Fungus Mycelium**, Material und Organismen, **9**, 225 (1974).

Pine wood (*Pinus densiflora* SIEB. et ZUCC.) invaded by 7 species of brown rot fungi respectively was extracted with ether. The trail-following activity of this extract to the termite *Coptotermes formosanus* was examined. An ether extract of the wood decayed by the fungi *Tyromyces palustris*, *Daedalea dickinsii*, *Lenzites trabea* or *Serpula lacrymans* was attractive to termites, but the extract of the wood decayed by the fungus *Coniophora puteana* or *Lentinus lepideus* seemed to be repellent to termites. The fungus *S. lacrymans* was selected for further investigation. The pine wood meal was infected with this fungus, and extracted with n-pentane, ether and methanol in that order at 4°C. The neutral fractions each from the n-pentane and the ether extracts showed a trail-following activity and therefore the fractions were purified by thin layer chromatography and each divided into 5 subsfractions on the thin layer plate. Subfractions 2 and 4 from the n-pentane extract, and subfraction 2 from the ether extract showed a trail-following activity. Therefore, it seems as if the trail-following substance consists of two or more activity components, is n-pentane-soluble and a neutral substance. Moreover, this substance seems susceptible to fraction on the silica gel HF plate with a solvent mixture of n-hexane and anhydrous ether (1 : 1).